

SYMMETRY, TRANSLATIONS AND REFLECTIONSTranslations of $y = f(x)$ Ex) $y = \sqrt{x}$ using 4 units

	General	Example
Horizontal shift c units to the right		
Horizontal shift c units to the left		
Vertical shift c units downward		
Vertical shift c units upward		
Reflected about the x -axis		
Reflected about the y -axis		

Stretching and shrinking of $y = cf(x)$

	Example
If $c > 1$ graph stretches (narrower)	
If $0 < c < 1$ graph shrinks (wider)	

Symmetry

	Ordered Pairs	Equations
Symmetric to the y -axis		
Symmetric to the x -axis		
Symmetric to the origin		

Odd and Even Functions

Even	
Odd	